

# Hybrid Graphic Printer

## Instructions for Use

Before operating the unit, please read this manual thoroughly and retain it for future reference.

UP-X898MD



## Indication for Use / Intended use

The Sony UP-X898MD printer is a compact, medical grade black and white printer designed to be connected to both analog and/or digital radiology imaging systems such as mobile c-arm, ultrasound, cardiac cath lab cart based imaging systems and other compatible medical imaging systems. The printer provides hard copy prints of still images captured by the imaging system which are used as reference prints for the patient record or for referrals.

### Note

Images printed from the unit cannot be used for diagnostic use.

### Caution

Federal law (United States of America) restricts this device to sale by or on the order of a licensed healthcare practitioner.

## Owner's Record

The model and serial numbers are located at the bottom. Record these numbers in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. \_\_\_\_\_

Serial No. \_\_\_\_\_

## WARNING

**To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.**

**To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.**

**No modification of this equipment is allowed.**

**THIS APPARATUS MUST BE EARTHED.**

**To disconnect the main power, unplug the power plug.**

**When installing the unit, incorporate a readily accessible disconnect device in the fixed wiring, or connect the power plug to an easily accessible socket-outlet near the unit.**

**Do not position the ME equipment where it is difficult to unplug the power plug.**

**If a fault should occur during operation of the unit, operate the disconnect device to switch the power supply off, or unplug the power plug.**

## Symbols on the products



### General warning sign

Follow the warnings in the Instructions for Use for parts of the unit on which this mark appears.

NOTE Background color: Yellow  
Triangular band: Black  
Symbol: Black



### Consult the Instructions for Use

Follow the directions in the Instructions for Use for parts of the unit on which this mark appears.



This symbol indicates the manufacturer, and appears next to the manufacturer's name and address.



This symbol indicates the European Community representative, and appears next to the European Community representative's name and address.



This symbol indicates the equipotential terminal which brings the various parts of a system to the same potential.

## For the customers in the U.S.A.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

All interface cables used to connect peripherals must be shielded in order to comply with the limits for a digital device pursuant to Subpart B of part 15 of FCC Rules.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device maynot cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

## For the customers in Canada

CAN ICES-3 (A)/NMB-3(A)

This unit has been certified according to Standard CAN/CSA-C22.2 No.60601-1.

## Important safeguards/notices for use in the medical environments

1. All the equipments connected to this unit shall be certified according to Standard IEC60601-1, IEC60950-1, IEC60065 or other IEC/ISO Standards applicable to the equipments.
2. Furthermore all configurations shall comply with the system standard IEC60601-1-1. Everybody who connects additional equipment to the signal input part or signal output part configures a medical system, and is therefore, responsible that the system complies with the requirements of the system standard IEC60601-1-1. If in doubt, consult the qualified service personnel.

3. The leakage current could increase when connected to other equipment.
4. For this particular equipment, all accessory equipment connected as noted above, must be connected to mains via an additional isolation transformer conforming with the construction requirements of IEC60601-1 and providing at least Basic Insulation.
5. This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance with the instruction manual, it may cause interference to other equipment. If this unit causes interference (which can be determined by unplugging the power cord from the unit), try these measures: Relocate the unit with respect to the susceptible equipment. Plug this unit and the susceptible equipment into different branch circuit.

Consult your dealer. (According to standard IEC60601-1-2 and CISPR11, Class B, Group 1)

## Important EMC notices for use in the medical environments

- The UP-X898MD needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in this instructions for use.
- The portable and mobile RF communications equipment such as cellular phones can affect the UP-X898MD.

### Warning

The use of accessories and cables other than those specified, with the exception of replacement parts sold by Sony Corporation, may result in increased emissions or decreased immunity of the UP-X898MD.

Guidance and manufacturer's declaration-electromagnetic emissions		
The UP-X898MD is intended for use in the electromagnetic environment specified below. The customer or the user of the UP-X898MD should assure that it is used in such an environment.		
Emission test	Compliance	Electromagnetic environment-guidance
RF emissions CISPR 11	Group 1	The UP-X898MD uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	


### Warning

If the UP-X898MD should be used adjacent to or stacked with other equipment, it should be observed to verify normal operation in the configuration in which it will be used.

Guidance and manufacturer's declaration - electromagnetic immunity			
The UP-X898MD is intended for use in the electromagnetic environment specified below. The customer or the user of the UP-X898MD should assure that it is used in such as environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	±1 kV differential mode ±2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	< 5% $U_T$ (> 95% dip in $U_T$ ) for 0.5 cycle  40% $U_T$ (60% dip in $U_T$ ) for 5 cycles  70% $U_T$ (30% dip in $U_T$ ) for 25 cycles  < 5% $U_T$ (> 95% dip in $U_T$ ) for 5 sec	< 5% $U_T$ (> 95% dip in $U_T$ ) for 0.5 cycle  40% $U_T$ (60% dip in $U_T$ ) for 5 cycles  70% $U_T$ (30% dip in $U_T$ ) for 25 cycles  < 5% $U_T$ (> 95% dip in $U_T$ ) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the UP-X898MD requires continued operation during power mains interruptions, it is recommended that the UP-X898MD be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at least characteristic of a typical location in a typical commercial or hospital environment.
NOTE: $U_T$ is the a.c. mains voltage prior to application of the test level.			

### Guidance and manufacturer's declaration - electromagnetic immunity

The UP-X898MD is intended for use in the electromagnetic environment specified below. The customer or the user of the UP-X898MD should assure that it is used in such as environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	<p>Portable and mobile RF communications equipment should be used no closer to any part of the UP-X898MD, including cables, than the recommended separation distance calculated from the equation appliance to the frequency of the transmitter.</p> <p>Recommended separation distance</p> $d = 1.2 \sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	<p><math>d = 1.2 \sqrt{P}</math> 80 MHz to 800 MHz</p> <p><math>d = 2.3 \sqrt{P}</math> 800 MHz to 2.5 GHz</p> <p>Where <math>P</math> is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and <math>d</math> is the recommended separation distance in meters (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, <sup>a</sup> should be less than the compliance level in each frequency range. <sup>b</sup></p> <p>Interference may occur in the vicinity of equipment marked with following symbol:</p> 

NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the UP-X898MD is used exceeds the applicable RF compliance level above, the UP-X898MD should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the UP-X898MD.

b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended separation distances between portable and mobile RF communications equipment and the UP-X898MD			
The UP-X898MD is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the UP-X898MD can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (Transmitters) and the UP-X898MD as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d = 1.2 \sqrt{P}$	80 MHz to 800 MHz $d = 1.2 \sqrt{P}$	800 MHz to 2.5 GHz $d = 2.3 \sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23
For transmitters rated a maximum output power not listed above, the recommended separation distance $d$ in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where $P$ is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.			
NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.			
NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

### Caution

When you dispose of the unit or accessories, you must obey the law in the relative area or country and the regulation in the relative hospital.



### Warning on power connection

Use a proper power cord for your local power supply.

1. Use the approved Power Cord (3-core mains lead) / Appliance Connector / Plug with earthing-contacts that conforms to the safety regulations of each country if applicable.
2. Use the Power Cord (3-core mains lead) / Appliance Connector / Plug conforming to the proper ratings (Voltage, Ampere).

If you have questions on the use of the above Power Cord / Appliance Connector / Plug, please consult a qualified service personnel.



### Warning on power connection for medical use

Please use the following power supply cord.

With connectors (plug or female) and cord types other than those indicated in this table, use the power supply cord that is approved for use in your area.

	United States and Canada
Plug Type	HOSPITAL GRADE*
Cord Type	Min. Type SJT Min. 18 AWG
Minimum Rating for Plug and Appliance Couplers	10 A/125 V
Safety Approval	UL Listed and CSA

\*Note: Grounding reliability can only be achieved when the equipment is connected to an equivalent receptacle marked 'Hospital Only' or 'Hospital Grade'.

### For the customers in Europe

This product has been manufactured by or on behalf of Sony Corporation, 1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan. Inquiries related to product compliance based on European Union legislation shall be addressed to the authorized representative, Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Germany. For any service or guarantee matters, please refer to the addresses provided in the separate service or guarantee documents.

### For the State of California, USA only

Perchlorate Material – special handling may apply, See [www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate)



**Disposal of Old Electrical & Electronic Equipment**  
**(Applicable in Republic of India)**

India only

This symbol indicates that this product shall not be treated as household waste **and may not be dropped in garbage bins**. Product owners are advised to deposit their product at the nearest collection point for the recycling of electrical and electronic equipment. Your co-operation shall facilitate proper disposal & help prevent potential negative consequences/hazards to the environment and human health, which could otherwise be caused by inappropriate waste disposal **including improper handling, accidental breakage, damage and/ or improper recycling of e-waste**. The recycling of materials will help to conserve natural resources.

For more detailed information about recycling of this product, please contact your local civic office, your household waste disposal service provider or the store where you made the purchase. You may contact our company's toll free number in India for assistance.

This product complies with the "India E-waste Rule 2011". The E-waste Rules, 2011 is an Indian directive aimed at reducing the harmful environmental impact of waste electrical equipment by restricting the use of known hazardous substances. As of 1st May 2012, new electrical and electronic equipment introduced into the market may no longer contain the following chemicals or its specified maximum concentration levels: Lead, Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB) or Polybrominated Diphenylethers (PBDE) - in concentrations exceeding 0.1 weight % and Cadmium - 0.01 weight %, except of exemptions set in Schedule 2 of the aforesaid Rule.

**For the customers in Taiwan only**



廢電池請回收

**For the customers in the U.S.A.**

**SONY LIMITED WARRANTY** - Please visit <http://www.sony.com/psa/warranty> for important information and complete terms and conditions of Sony's limited warranty applicable to this product.

**For the customers in Canada**

**SONY LIMITED WARRANTY** - Please visit <http://www.sonybiz.ca/solutions/Support.do> for important information and complete terms and conditions of Sony's limited warranty applicable to this product.

**For the customers in Europe**

Sony Professional Solutions Europe - Standard Warranty and Exceptions on Standard Warranty. Please visit <http://www.pro.sony.eu/warranty> for important information and complete terms and conditions.

**For the customers in Korea**

**SONY LIMITED WARRANTY** - Please visit <http://bpeng.sony.co.kr/handler/BPAS-Start> for important information and complete terms and conditions of Sony's limited warranty applicable to this product.

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# Overview

### Quiet, high quality, fast printing

- A thin-film thermal head with a built-in high speed drive IC is equipped, and printing high resolution images of 12.8 dots/mm is available.
- High quality image (A-7 size single printout) printing is available in approx. 1.9 seconds per print when printing at high speed (when “HI” is selected in “-SPEED” of the “CONFIG.” menu).
- Monochrome printing with up to 256 shades of gradation is available.
- Built-in temperature correction circuits prevent temperature changes which could cause blurred prints.

### Printable from the video equipment or computer

You can print from the video inputs of both NTSC and PAL. Also, this unit has a USB connector (type B) corresponding to the Hi-Speed USB (USB 2.0 compliant), so you can print a digital image from the computer.

There is no special operation you need to perform to switch to printing from video equipment or computers.

### Image storage to USB flash drive

This unit has a USB connector (type A) corresponding to the Hi-Speed USB (USB 2.0 compliant), so you can store a printed image to a USB flash drive.

### Easy printer settings using a menu

You can make up the settings to meet your requirements using a menu. You can store up to three settings as a set of user settings.

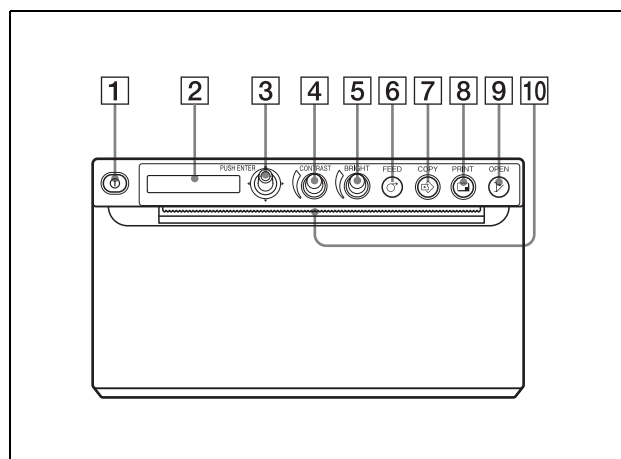
### Easy paper loading

Free access to the door panel allows you to drop paper into the unit for easy loading.

# Location and Function of Parts and Controls

For more details, see the referenced page numbers enclosed in parentheses ( ).

## Front Panel



- 1** **① Power ON/OFF Switch (14, 21, 23, 31)**  
Press the switch to ON. The back light on the LCD lights in green.

### Note

When the switch is turned off or when turning the main power off then on again, wait about five seconds and turn on the unit.





- 2** **Printer window display (LCD: liquid crystal display) (16, 24)**  
The back light lights in green when the unit operates normally.  
If an error occurs, the back light lights in orange and a corresponding alarm message is displayed. During menu operations, menu items and settings are displayed.

- 3** **Menu lever (21, 31)**  
Use to make menu operations.

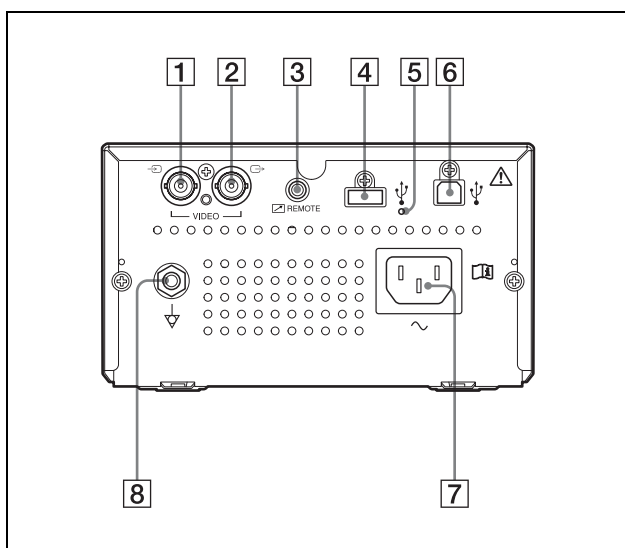
- 4** **◁ CONTRAST control (27)**  
Adjust the contrast of the printouts.





- 5** **◁ BRIGHT (brightness) control (27)**  
Adjust the brightness of the printouts.

- 6** **⏏ FEED button (15, 26)**  
Hold down to feed paper.  
While a print job is in progress, press to cancel the print job.

- 7**  **COPY button (27)**  
Press to print another copy of the previous printout. You can make only one copy each time you press this button regardless of the print quantity set using the menu.
- 8**  **PRINT button (23, 28)**  
Press to print the image currently displayed on the video monitor. The image displayed when you press the PRINT button is stored in memory.
- 9**  **OPEN button (14, 26)**  
Press to open the door panel. While a print job is in progress, press to cancel the print job.
- 10**  **Paper cutter**  
Cuts the paper as each image is printed.




## Rear Panel



- 1**  **VIDEO input connector (BNC type)**  
Connect to the video output connector of the video equipment.
- 2**  **VIDEO output connector (BNC type)**  
Connect to the video input connector of the video monitor.  
The image from the VIDEO input connector outputs to the monitor.
- 3**  **REMOTE (remote commander) connector (11)**  
Connects the RM-91 remote commander unit or the FS-24 foot switch for controlling print operation from a distance.
- 4**  **USB connector (type A) (28)**  
Connect to a USB flash drive.

### Note

Do not connect to a USB device other than a Sony flash memory formatted with FAT16 or FAT32 in 64GB or less.

- 5** **USB connector (type A) lamp**  
If an unsupported USB device is connected, this lamp will light in orange. When the supported USB device is connected, this lamp will not light.
- 6**  **USB connector (type B)**  
Connects to a computer equipped with the USB interface, using a USB cable compatible with Hi-Speed USB (sold separately).
- 7**  **AC IN connector**  
Use a specified power cord.  
Refer to “Warning on power connection” (page 6) and “Warning on power connection for medical use” (page 6).
- 8**  **Equipotential terminal**  
Used to connect to the equipotential plug to bring the various parts of a system to the same potential. Refer to “Important safeguards/notices for use in the medical environments” (page 3).

# Connections



## Warning

### Using this unit for medical purposes

This equipment's connectors are not isolated.

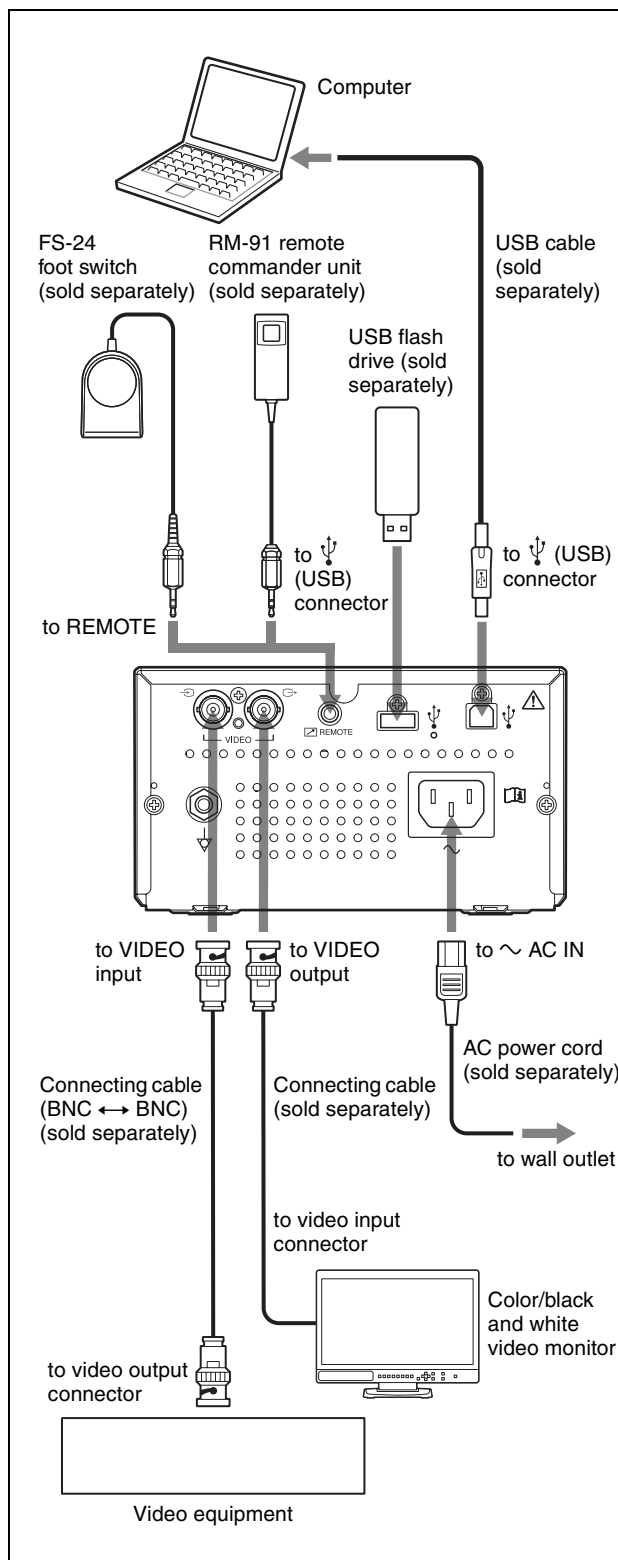
Do not connect any device other than one which conforms to IEC60601-1.

When an information technology device or AV device that uses an alternating current is connected, current leakage may result in an electric shock to the patient or operator.

If use of such a device is unavoidable, isolate its power supply by connecting an isolation transformer, or by connecting an isolator between the connecting cables. After implementing these measures, confirm that the reduced risk now conforms to IEC60601-1.

## Notes

- Turn off the power to each device before making any connections.
- Connect the AC power cord last.
- Before connecting the unit to the computer, turn off the unit, computer, monitor, and all peripheral devices connected to the computer.
- Before connecting the unit to the computer, disconnect the power cord from the unit. Connect the power cord to the unit only after connecting the unit and the computer.
- Follow the connection procedures described in the computer manual.
- Make sure that the cables are connected securely at both ends.
- The unit drive software provided with the unit is not suitable for using the unit connected to a network.
- Printer operation is not guaranteed when connecting to the computer using the USB cable via a hub.
- Two or more units cannot be connected to a single computer.



## Installing the Printer Driver to the Computer

### When you use Windows XP/Windows Vista:

After connecting this unit to the computer, turn on this unit. For installing, see the Install Guide of the supplied CD-ROM and the Readme file.

### When you use Windows 7/8:

Before connecting this unit to the computer, install the supplied printer driver to the computer. For installing, see the Install Guide of the supplied CD-ROM and the Readme file.

#### Note

When this unit is turned on, do not make the computer which is connected to this unit standby (suspended) or pause mode. It may occur the malfunction.

## Paper

Use only Sony UPP-110S/110HD/110HG paper designed for use with this unit. High print quality cannot be guaranteed if any other paper is used with this unit, and such paper could damage the unit.

**You cannot use the UPP-110HA as specified for the UP-880/890MD series printer.**

## Paper You Can Use

Print paper characteristics are as follows.

Print Characteristics	Paper Type
TYPE I (Normal)	UPP-110S
TYPE II (High Density)	UPP-110HD
TYPE V (High Glossy)	UPP-110HG

## Notes on storing and handling paper



### Do not re-use

Doing so may result in malfunction and negatively affect printing results.

### Storing unused paper

- Store unused paper at a temperature below 30°C (86°F) in a dry location that is not exposed to direct sunlight.
- Do not store unused paper near volatile liquids or allow the paper to contact any organic volatile liquid, cellophane tape, or any compound of vinyl chloride.

### Loading paper

- Handle the paper carefully when loading not to touch the printing surface with your fingers. Inspection gel, fingerprints or perspiration could cause pictures to blur.
- After removing the label from the leading edge of the paper, pull the paper out 15 – 20 cm (6 – 8 in) before printing. Label adhesive remaining on the paper could spoil a picture.
- If you reuse paper that has been removed once, pull out 15 – 20 cm (6 – 8 in) before printing. If the dust, etc. exists, it could spoil a picture.

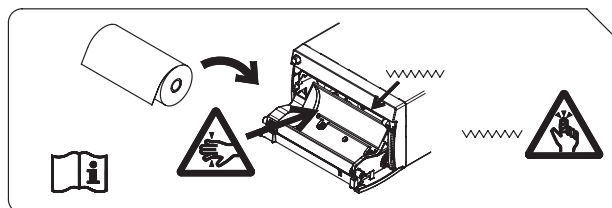
### Storing printouts

- To prevent printouts from fading or changing color, store them in a cool, dry location where the temperature is not higher than 30°C (86°F).
- Store printouts in a polypropylene pouch or between sheets of paper that contain no plastic.
- Do not store printouts where they will be exposed to direct sunlight or high humidity.
- Do not store printouts near volatile liquids or allow the prints to contact any organic volatile liquid, cellophane tape, or any compound of vinyl chloride.

- To prevent fading, do not stack printouts on or under a diazo copy sheet.
- To mount printouts on another sheet of paper, use double-sides tape or a water base adhesive.
- Do not incinerate waste printer paper.

## Loading Paper

When loading paper, make sure to follow the notes of the symbols on the unit.



### Caution

A paper cutter is mounted in the unit. When cleaning the thermal head, be careful not to touch the paper cutter. Touching the paper cutter may cause injury.



### Caution

Do not insert your finger into the back of the paper tray. Your finger may become stuck in an internal gap, which may lead to injury.



### Caution

Do not touch any unit circuitry and the patient at the same time.

If the unit malfunctions, it may generate voltage that could be harmful to the patient.

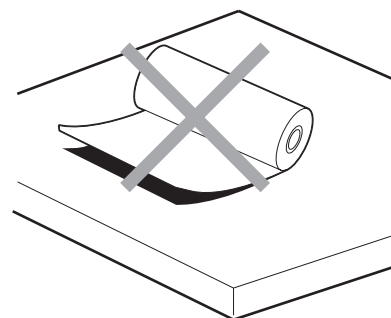
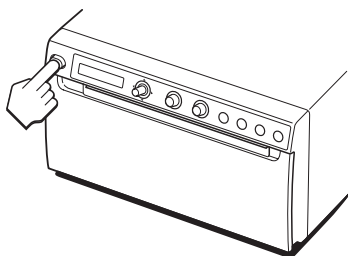
### Notes

- Before loading paper in the unit, see “Notes on storing and handling paper” (page 12).
- Always handle paper carefully when loading to avoid adversely affecting the quality of the printouts. Never bend or crease the paper and never touch the printing surface with your fingers. Inspection gel, fingerprints or perspiration could cause pictures to blur.
- Do not use any paper other than UPP-110S/110HD/110HG paper. (page 12)
- Be sure to set “-PP.TYPE” of the “CONFIG.” menu to the paper to be used. (page 20) You can confirm the media currently selected on the LCD. For detailed information on how to confirm, see “Paper currently selected” (page 24).

### Caution

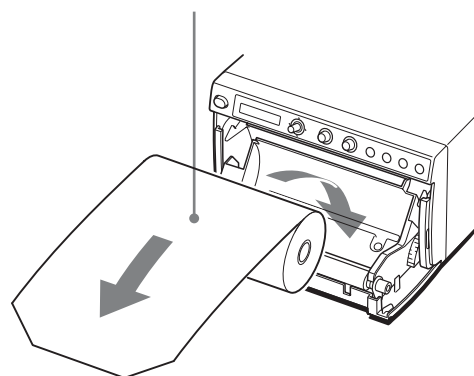
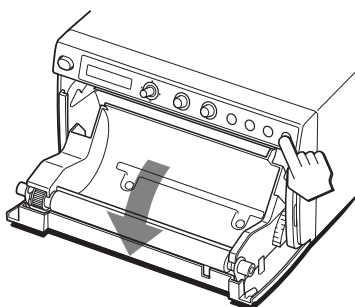
A paper cutter is mounted with the unit. When loading paper, be careful not to touch the paper cutter. Touching the paper cutter may cause injury.

- 1 Press the power ON/OFF switch to on.  
When paper is not loaded yet, the back light on the LCD lights in orange and the message “EMPTY” is displayed.



Load the paper with the printing side (heat sensitive side) up. Printing is not possible if the paper is reversed.

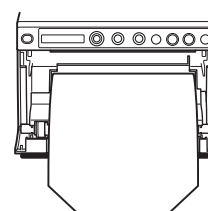
- 2 Press the OPEN button to open the door panel.



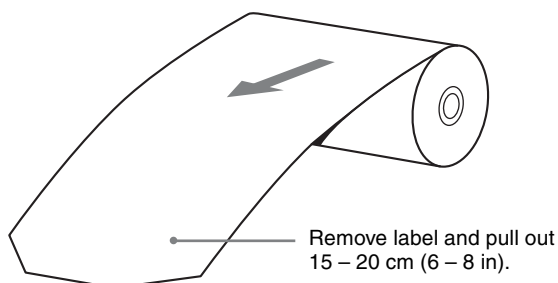
- 3 Remove the label from the leading edge of the paper, pull out about 15 – 20 cm (6 – 8 in) of the paper, and then set the paper roll in the paper tray.

#### Note

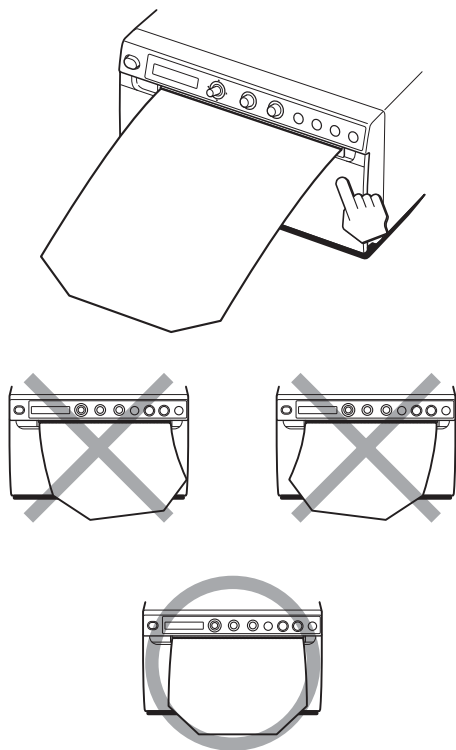
When installing/removing the paper to/from the paper tray, be careful not to drop the paper or put the paper on desk, etc., with the surface of the paper facing downward.



Make sure that the paper is set straight.



#### 4 Close the door panel by pushing it.



#### Notes

- Make sure that the paper is loaded straight. If it is skewed, this could cause the paper to jam.
- If you did not pull out enough paper in step 3, press the FEED button to feed some more paper out of the unit without pulling out the paper.

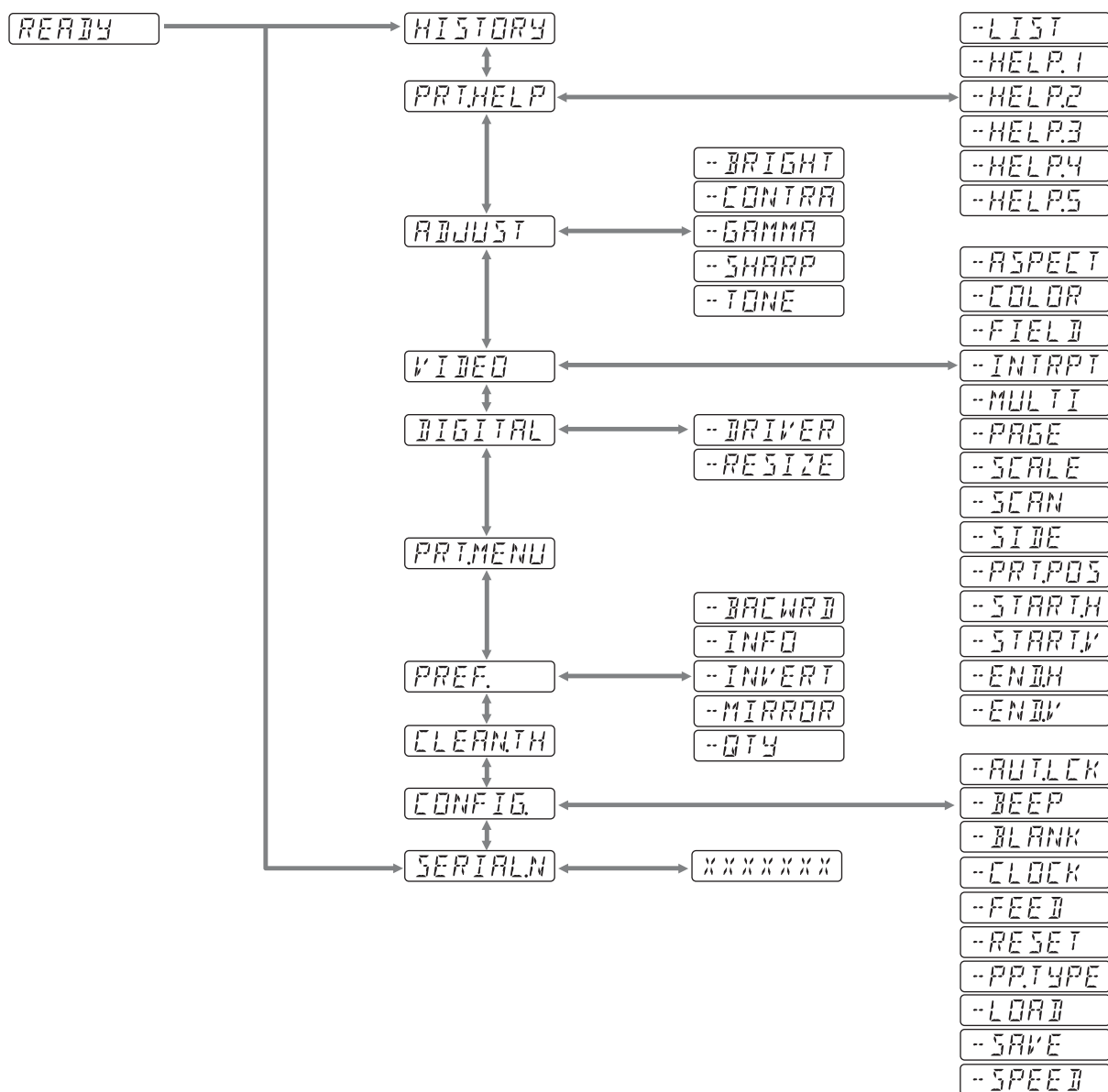
You can set up the unit according to its intended purpose, connected equipments or your individual preferences.  
You can store up to three settings as a set of user settings.

## Adjustments and Settings Using the Menu

You can carry out adjustments and settings to meet your requirements. Those settings and adjustments are retained even if the unit is turned off.

### Menu Flow

The contents displayed on the LCD change in sequence as you operate the menu lever, as shown in the following menu flow chart, and you can make the settings for each item.





## Menu List

This section describes the menus displayed as you operate the menu lever. The setting surrounded by    indicates the default setting.

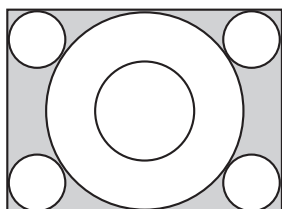
Item	Function	Settings	
HISTORY	Displays up to five recently used menus according to the menu operation history. "NO ITEM" is displayed as the default.		
PRT.HELP	Prints description of operation method. (English only)	-LIST	Prints list of operating instructions.
		-HELP.1	Prints instructions of "Contrast and Brightness Control."
		-HELP.2	Prints instructions of "Print direction and feed control."
		-HELP.3	Prints instructions of "Printing two different images on one sheet."
		-HELP.4	Prints instructions of "Making Copies of the Last Printout."
		-HELP.5	Prints instructions of "Storing Image Data on a USB Flash Drive."
ADJUST	Displays menu for adjusting image quality.	-BRIGHT	Adjusts brightness of printouts. You can set between -64 -- <span style="border: 1px solid black; padding: 0 2px;">0</span> -- +64.
		-CONTRA	Adjusts contrast of printouts. You can set between -64 -- <span style="border: 1px solid black; padding: 0 2px;">0</span> -- +64.
		-GAMMA	Select the type of gamma. When "P.TYPE:S" of the "-PP.TYPE" is selected, GAMA: 1 is fixed. GAMA4: Softest gradation GAMA3: Hard gradation <span style="border: 1px solid black; padding: 0 2px;">GAMA2</span> : Standard GAMA1: Soft gradation
		-SHARP	Adjusts the sharpness of the printout to any of 15 levels, from <span style="border: 1px solid black; padding: 0 2px;">0</span> to 14. The outline of the printout is most emphasized at the setting of 14 and no emphasis at the setting of "0" (default value).
		-TONE	Adjusts the density of halftone. You can set between -32 -- <span style="border: 1px solid black; padding: 0 2px;">0</span> -- +32.
VIDEO	Displays menu for video.	-ASPECT <sup>a)</sup>	Select the ratio of aspect. ASPT:1:1: Prints an image with an aspect ratio of 1:1. <span style="border: 1px solid black; padding: 0 2px;">ASPT:4:3</span> : This is the standard setting.
		-COLOR	Select color, in accordance with the input signal. COLR:ON: Video signal to print in color <span style="border: 1px solid black; padding: 0 2px;">COLR:OFF</span> : Video signal to print in black and white
		-FIELD	Select memory mode. FIED:ON: Avoids blurring the image when shooting in fast motion (such as capturing a ball being hit by a bat). <span style="border: 1px solid black; padding: 0 2px;">FIED:OFF</span> : This is the standard setting.

Item	Function	Settings
		<p>-INTRPT Select operation for when printing is stopped.</p> <p><b>Single picture mode</b>  INTR:ON: If you press the PRINT button again to cancel a print operation and want to print a screenshot at the moment the PRINT button is pressed, select this.  [INTR:OFF]: Even when you press the PRINT button again during a print operation, printing continues. If you want to print a screenshot at the moment the PRINT button is pressed after the print operation finishes, select this.</p> <p><b>Multi picture mode</b>  INTR:ON: If you press the PRINT button again to cancel a print operation and want to print a screenshot at the moment the PRINT button is pressed, select this. The screenshot is printed at the position that the number flashing in the LCD display indicates.  [INTR:OFF]: Even when you press the PRINT button again during a print operation, printing continues.</p>
		<p>-MULTI Select numbers of image to be printed out on a sheet.  MLT: Prints two images on one sheet.  [SGL]: Prints one image on one sheet.</p>
		<p>-PAGE Memorizes an image of each time the PRINT button is pressed, for up to 10 images. Select and print the images saved in the memory.  [PG:1] Prints by selecting an image and pressing COPY button.</p>
		<p>-SCALE Set the enlargement ratio of image to print.  You can set from 1.0 to 2.0 ([1.1]) in increments of 0.1.</p>
		<p>-SCAN <sup>b)</sup> Select an image to print.  The print area gets wider in the order of  SC:WD2  [SC:WD1]  SC:NOR</p>
		<p>-SIDE <sup>c)</sup> Select the direction in which the image is to be printed  SIDE:ON: Prints the image rotated by 90 degrees counterclockwise.  [SIDE:OFF]: Prints the image in the same direction as that displayed on the monitor.</p>
		<p>-PRT.POS Prints video images with coordinate lines for adjusting the printing area.</p>
		<p>-START.H Specify the starting point of printing area in the horizontal direction.  S.H: 0 to 719 ([5]) (NTSC)  [0] to 719 (PAL)</p>
		<p>-START.V Specify the starting point of printing area in the vertical direction.  S.V: 0 to 503 ([16]) (NTSC)  0 to 603 ([22]) (PAL)</p>
		<p>-END.H Specify the ending point of printing area in the horizontal direction.  E.H: 0 to 719 ([716]) (NTSC)  0 to 719 ([708]) (PAL)</p>
		<p>-END.V Specify the ending point of printing area in the vertical direction.  E.V: 0 to [503] (NTSC)  0 to [603] (PAL)</p>
DIGITAL	Displays menu of settings to print from computer.	<p>-DRIVER Select the printer driver to use for this unit.  [DRV:898]: Use the driver for UP-X898MD, UP-D898MD.  DRV:897: Use the driver for UP-897.</p>
		<p>-RESIZE Select whether or not the image is enlarged.  [RSIZ:OFF]: Prints the image at its original size.  RSIZ:ON: Prints the image at a larger size, according to the paper size set by the printer driver.</p>

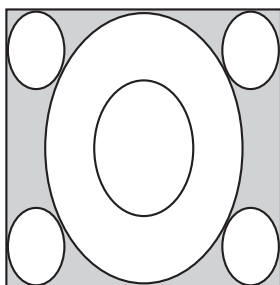
Item	Function	Settings	
PRT.MENU	Prints current settings by menu list.	MENU:OK	Prints by pushing the menu lever.
PREF.	Displays menu to set printout conditions.	-BACWRD <sup>d)</sup>	Select whether the top or bottom of the screen is to be printed first. BACW:ON: Starts to print in the reverse direction (from the top of the screen). [BACW:OFF]: Starts to print in the normal direction (from the bottom of the screen).
		-INFO	Select whether the print conditions are to be printed under image. [INFO:OFF]: Does not print information. INFO:ADJ: Prints image quality adjustment value. INFO:CLK: Prints date and time. INFO:STR: Prints pathname/file name.
		-INVERT	Set the printout to either positive printout or negative printout. INV:NEG: Makes negative printouts. [INV:POS]: Makes normal printouts.
		-MIRROR	Prints image inverting right and left. MIRR:ON: Inverts right and left of image. [MIRR:OFF]: Does not invert image.
		-QTY	Set the print quantity. QTY: [1] -- 10: You can make 1 -- 10 copies of the same printout.
CLEAN.TH	Starts head cleaning.	CLEAN:OK	Starts the head cleaning by pushing the menu lever.
CONFIG.	Displays settings for operation.	-AUT.LCK	Select whether to lock BRIGHT control and CONTRAST control automatically. ALCK:ON: Always lock automatically. Unlock by pushing and holding the menu lever for three seconds on STANDBY. The controls are locked after ten seconds of no operation. [ALCK:OFF]: Does not lock automatically. Lock/unlock the controls by pushing and holding the menu lever for three seconds.
		-BEEP	Select whether the operation tone sounds. Error tones sound regardless of the setting. BEEP:OFF: The operation tone does not sound. [BEEP:ON]: The operation tone sounds.
		-BLANK	Adjust the blank space length. BLANK:L: Lengthens the blank space. [BLANK:S]: Shortens the blank space. Adjust the length of the top blank space (BACW:OFF) or the bottom blank space (BACW:ON).
		-CLOCK	Set date and time. Set year: Set by turning the BRIGHT control and pushing the menu lever when "Y: XXXX" is displayed. Set month, hour, minute, and second as above. Reset by shifting the menu lever to the left. Greenwich Mean Time is set as the default.
		-FEED	To select the paper feed length to be used after printing. [FEED:ON]: Feeds extra blank paper between prints. FEED:OFF: Feeds less paper between prints to conserve paper, or when printing multiple pictures on the same sheet without cutting. More pictures can be printed on one roll when there is only a little space between printed pictures. Feed the desired length of the paper to leave a margin, using the FEED button before cutting the paper.
		-RESET	Resets the menu items to the default setting. (initialization) [RESET:OK]: Resets the settings to the default.

Item	Function	Settings
		-PP:TYPE Select paper to use. [P.TYPE:HG]: Use UPP-110HG. P.TYPE:HD: Use UPP-110HD. P.TYPE:S: Use UPP-110S.
		-LOAD Loads the registered menu settings. LOAD:3: Loads the "SAVE:3" settings registered using the SAVE menu item. LOAD:2: Loads the "SAVE:2" settings registered using the SAVE menu item. [LOAD:1]: Loads the "SAVE:1" settings registered using the SAVE menu item.
		-SAVE Register up to three settings. SAVE:3: Registers the menu settings as No.3. SAVE:2: Registers the menu settings as No.2. [SAVE:1]: Registers the menu settings as No.1.
		-SPEED Select the printing speed. When you use the UPP-110HD paper, you cannot select HI (high speed printing). [HI]: Prints at high speed. NOR: Prints at the normal speed.
SERIAL.N	Displays serial numbers of the product.	

a) The aspect ratio is as follows.

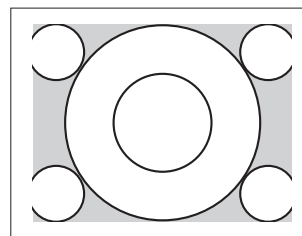


When "ASPT:4:3" is selected

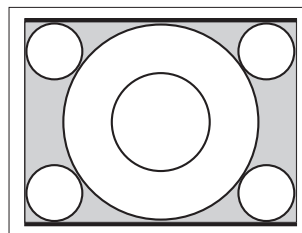


When "ASPT:1:1" is selected

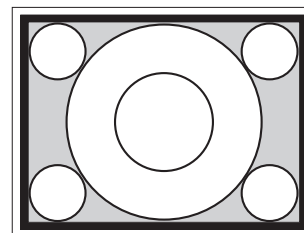
b) The range of the image to be printed is as follows.



When "SC:NOR" is selected



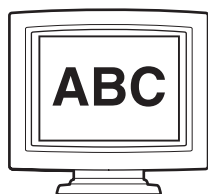
When "SC:WD1" is selected



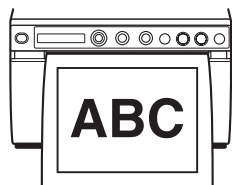
When "SC:WD2" is selected

c) The print direction of the images printed is as follows.

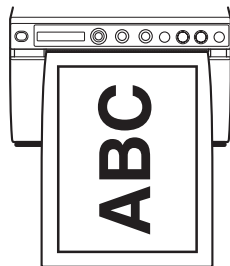
Image displayed on the monitor



Printouts

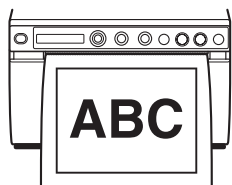


When "SIDE:OFF" is selected

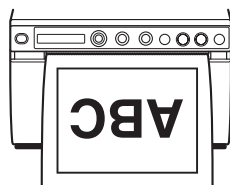


When "SIDE:ON" is selected

d) The printing direction is as follows.



When "BACW:OFF" is selected

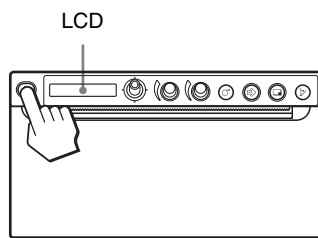


When "BACW:ON" is selected

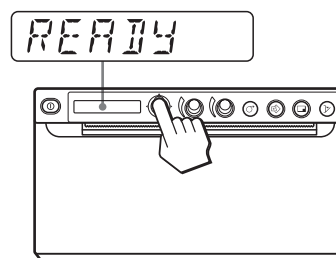
## Basic Menu Operations

This section describes the basic menu operations which are common to each menu, taking settings for printing direction as an example.

- 1 Press the power ON/OFF switch to on.  
The back light on the LCD lights in green.

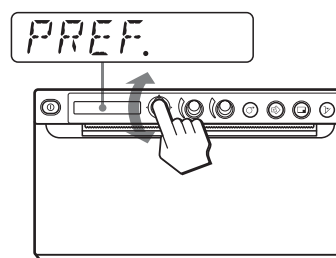


- 2 Confirm that "READY" is displayed on the LCD, and push the menu lever.



The unit enters the menu mode.  
Menu item is displayed on the LCD.

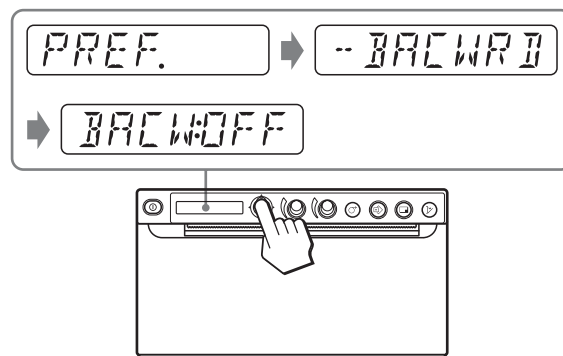
- 3 Display "PREF." by shifting the menu lever up or down.



- 4 Push the menu lever or shift it to the right.  
The unit enters the menu mode in which you can set printing condition. The menus have "-" in front of their name.

- 5 Display "-BACWRD" by shifting the menu lever up or down.

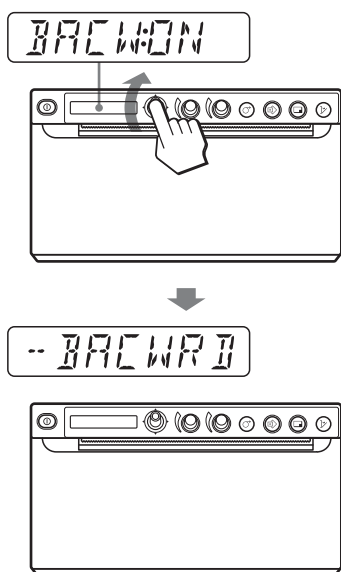
- 6 Push the menu lever or shift it to the right.



The unit enters the mode in which you can select the printing direction.

“BACW:OFF,” which is the default setting, is displayed on the LCD. “BACW:OFF” is the currently selected setting.  
In this menu operation, you will change the setting to “BACW:ON.”

- 7** Display “BACW:ON” by shifting the menu lever up, and then push the menu lever.



“BACW:ON” is registered as the printing direction.  
“-BACWRD” is displayed on the LCD.

#### Note

If about 20 seconds elapse without making any menu operation after you have displayed the menu item or setting, the display returns to “READY” on the LCD and the unit exits the menu mode. In such a case, the setting of “-BACWRD” is not changed.

#### To cancel the setting

Go back to step 5 or 3 by shifting the menu lever to the left in step 7.

#### To continue menu operations

Make settings by repeating steps 3 to 7.

#### To end the menu operations

Display “READY” by shifting the menu lever to the left after step 7.

The unit exits the menu mode.

#### Menu lock function

If the message “LOCK” is displayed and you hear the alarm sound when you push the menu lever, the menu lever is disabled because the menu operation function is locked. If you want to perform a menu operation, contact the nearest authorized dealer.

## Registering Menu Settings

You can store up to three sets of settings made using the menu, and you can load the desired setting when needed. The unit retains these settings even if you turn off the power.

#### Note

When you use the unit for the first time after you purchase it, default settings are registered in all three of the stored selections.

## Registering new settings

- 1** Make all of the required settings.
- 2** Display “CONFIG.” by shifting the menu lever up or down, and then push the menu lever or shift it to the right.  
The unit enters the menu in which you can make setting for printer operation.
- 3** Display “-SAVE” by shifting the menu lever up or down, and then push the menu lever or shift it to the right.  
The number is displayed, such as “SAVE:1.”
- 4** Select the desired number by shifting the menu lever up or down, and then push the menu lever.  
The value set in step 1 is registered to the number selected.

## Loading the desired settings

You can load the desired settings and make printouts with the loaded settings.

- 1** Confirm that “READY” is displayed on the LCD, and then push the menu lever.
- 2** Display “CONFIG.” by shifting the menu lever up or down, and then push the menu lever or shift it to the right.
- 3** Display “-LOAD” by shifting the menu lever up or down, and then push the menu lever or shift it to the right.  
The number is displayed, such as “LOAD:1.”
- 4** Select the desired number of setting content by shifting the menu lever up or down, and then push the menu lever.  
The setting of the number selected is loaded.

## When you change the loaded settings

The unit operates according to the changed settings. In this case, the unit operates according to these settings

until you load another set of settings, even if you turn off the unit. When you load another group of settings, the settings loaded previously are cleared.

### To retain previously loaded settings

Example: Settings registered as setting 1 are loaded and settings are to be changed. To retain the original settings of setting 1 and to register the new settings as setting 2, proceed as follows.

- 1** Load the settings of “LOAD:1” following the procedure for loading the desired settings.
- 2** Change the loaded settings as required.
- 3** Select “SAVE:2” following procedure for registering the settings.
- 4** Push the menu lever.  
The settings, changed in step 2, are registered as “SAVE:2.”

## Printing the Menu List

You can make a printout of the current menu settings.

- 1** Push the menu lever.  
The menu list is displayed and the unit enters menu mode.
- 2** Display “PRT.MENU” by shifting the menu lever up or down, and then push the menu lever or shift it to the right.
- 3** Confirm “MENU:OK” is displayed, and then push the menu lever.  
The unit starts printing the current menu settings. “PRT.MENU” is displayed on the LCD.
- 4** Shift the menu lever to the left.  
“READY” is displayed and the unit enters the normal printing mode.

## Printing

### Printing from the Video Equipment

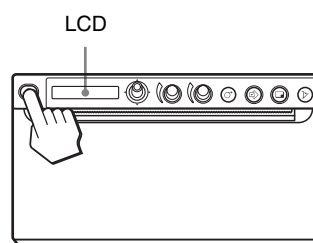
Before starting a print job, always check the following points:

- Unit connected correctly? (page 11)
- Paper loaded correctly? (page 13)
- Menu settings and adjustments done correctly? (page 16)
- Video source being input? (page 11)

### Starting a Print Job

You can set up the printing direction, image size, and all sorts of settings for printing, using the menu. This section describes operations after completing all sorts of settings using the menu.

- 1** Press the power ON/OFF switch to on.  
The back light on the LCD lights in green, and “READY” is displayed on the LCD.



- 2** Start the video source.  
This operation is done using the controls of the video equipment which you are using as a source.
- 3** Press the PRINT button when the image you want to print is on the video monitor.  
The image displayed at the instant you press the PRINT button is captured into memory and is printed out immediately. Up to 10 captured images are stored in memory. When captured image exceeds 10, the oldest data is overwritten with the latest one in sequence.

### When the message is displayed on the LCD

If a problem occurs, the back light on the LCD lights in orange and the error message stating the problem is displayed on the LCD.

Message	Cause and remedy
EMPTY:XX	Paper is not loaded. Load paper.
DOOR:XX	The door is open. Close the door.

XX indicates the selected paper.

“S” means UPP-110S, “HD” means UPP-110HD, and “HG” means UPP-110HG.

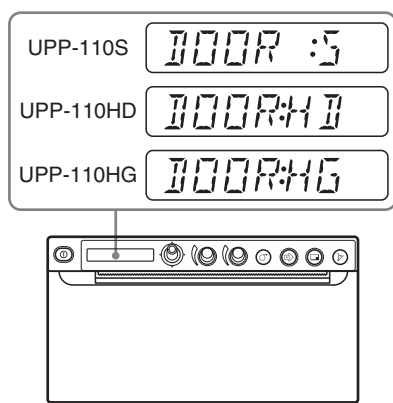
### When the unit stops printing

When printing almost black images continuously, the thermal head protection circuit may shut down the unit to prevent the thermal head from overheating. In such a case, the message “COOLING” is displayed on the LCD.

Leave the unit until the head cools down and this message disappears.

### Paper currently selected

You can check the paper type currently selected on the LCD. The paper type currently selected is displayed on the right edge of the LCD when you press the OPEN button and open the door panel.



### If the printout image is blurred

A rapidly moving image may be blurred when printed. Should this occur, make a printout with “-FIELD” selected in the “FIELD:ON” menu item.

### Printing images stored in memory

Each time you press the PRINT button, the image is stored in memory. After 10 images have been stored, the oldest image data is overwritten with the newest captured image in sequence.

There are always 10 images stored in memory. You can load the desired one from among them and print it using the menu.

- 1 Select “-PAGE” from among the menu items.

For detailed information on menu operation, see “Basic Menu Operations” on page 21.

- 2 Push the menu lever or shift it to the right. “PAGE:1” is displayed on the LCD. As the number increases, the image displayed becomes older.
- 3 Display the number of “PAGE” that you want to print by shifting the menu lever up or down.
- 4 Push the menu lever. The image selected in step 3 is printed.

#### Note

The selected image in “-PAGE” cannot be printed by the COPY button.

### Printing two different images on one sheet

“MLT” selected in “-MULTI” of “VIDEO” allows you to capture two different images and print them on one sheet.

- 1 Select “MLT” in “-MULTI.” The LCD display is changed to the multi picture mode. “1” flashes.



- 2 Press the PRINT button in step 3, following the operations outlined in “Starting a Print Job” on page 23. The image displayed at the instant you press the PRINT button is captured, and the image is registered to “1.” Then, “2” flashes.



- 3 Press the PRINT button again when the image you want to print is on the video monitor. The image is registered to “2,” and the printer starts printing two images on one sheet as follows.



Image captured in step 2      Image captured in step 3

“INFO:ADJ” is selected in “-INFO” of “PREF.” data on the contrast and brightness of the image captured in step 3 is printed under the image.



## Selecting the Printing Direction and Image Size

You can select the printing direction and image size using the following “VIDEO” menu items.

“-SIDE”: Selects the direction in which the image is to be printed.

“-SCALE”: Enlarges the size of the image to be printed.

“-PRT.POS”: Prints video images with coordinate lines for adjusting the printing area.

“-START.H” and “-START.V”: Sets the start position of the range to print.

“-END.H” and “-END.V”: Sets the end position of the range to print.

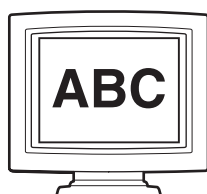
### To select the printing direction

You can select the printing direction using the “-SIDE” menu item.

**To print in the same direction as the one displayed on the video monitor:** Select “SIDE:OFF.”

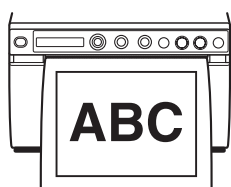
**To print the image rotated by 90 degree counterclockwise:** Select “SIDE:ON.”

Image displayed on the video monitor

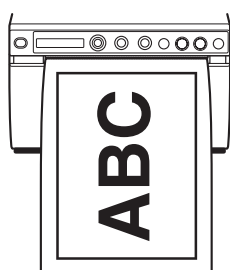


Printouts

When “SIDE:OFF” is selected



When “SIDE:ON” is selected



### To select the image size

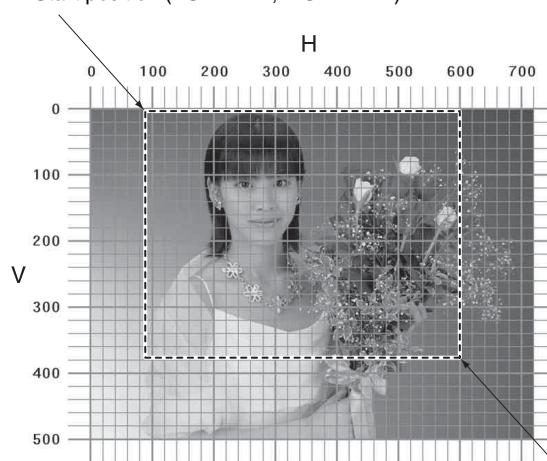
The “-SCALE” menu item allows you to enlarge or reduce the size of the image. You can set the image size from normal up to two times the size of the image in 0.1 step increments.

### To set the range of the image to be printed

- 1 Push the menu lever when “P.POS:OK” in “-PRT.POS” of “VIDEO” is displayed.  
A print range adjustment with the coordinate line is printed.

- 2 Check the coordinate value of starting and ending position to print.
- 3 Display “S.H:” by shifting the menu lever to the right when “-START.H” is displayed, and then enter the horizontal coordinate value of the printing start by shifting the menu lever to the right or left.
- 4 Display “S.V:” by shifting the menu lever to the right when “-START.V” is displayed, and then enter the vertical coordinate value of the printing start by shifting the menu lever to the right or left.
- 5 Display “E.H:” by shifting the menu lever to the right when “-END.H” is displayed, and then enter the horizontal coordinate value of the printing end by shifting the menu lever to the right or left.
- 6 Display “E.V:” by shifting the menu lever to the right when “-END.V” is displayed, and then enter the vertical coordinate value of the printing end by shifting the menu lever to the right or left.
- 7 Display “READY” by shifting the menu lever to the left, start printing by pressing the PRINT button, and then check that the selected range is printed.

Start position (“-START.H,” “-START.V”)



End position (“-END.H,” “-END.V”)

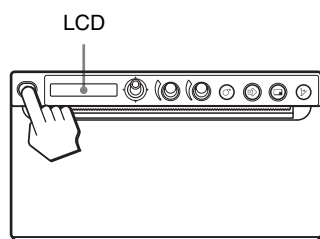
## Printing from the Computer

Before starting a print job, always check the following points:

- Unit connected correctly? (page 11)
- Printer driver installed? (page 12)
- Paper loaded correctly? (page 13)
- Menu settings and adjustments done correctly? (page 16)

## Starting a Print Job

- 1 Press the power ON/OFF switch to on.  
The back light on the LCD lights in green, and “READY” is displayed on the LCD.



- 2 Operate the computer by using the application software.

### When the message is displayed on the LCD

If a problem occurs, the back light on the LCD lights in orange and the error message stating the problem is displayed on the LCD.

Message	Cause and remedy
EMPTY:XX	Paper is not loaded. Load paper.
DOOR:XX	The door is open. Close the door.

XX indicates the selected paper.

“S” means UPP-110S, “HD” means UPP-110HD, and “HG” means UPP-110HG.

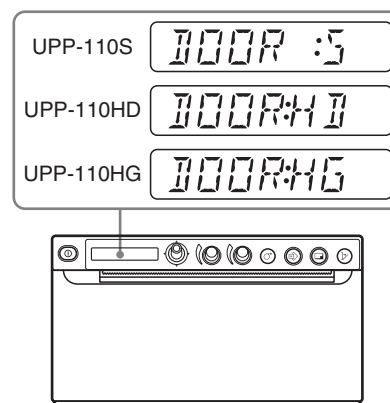
### When the unit stops printing during printing

When printing almost black images continuously, the thermal head protection circuit may shut down the unit to prevent the thermal head from overheating. In such a case, the message “COOLING” is displayed on the LCD.

Leave the unit until the head cools down and this message disappears.

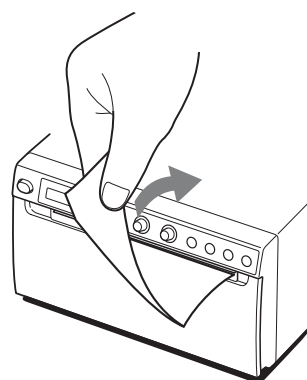
### Paper currently selected

You can check the paper type currently selected on the LCD. The paper type currently selected is displayed on the right edge of the LCD when you press the OPEN button and open the door panel.



## Cutting the Printed Paper

Hold the edge of the paper and cut the paper upward in an arc.



### Note

If you cut the paper by pulling it horizontally, the paper inside the unit will skew and may cause misprinting. If the paper is skewed, reload the paper correctly. (page 13)

## Canceling a Print Job

To cancel a print job in progress, press the OPEN button or the FEED button.

## Making Copies of the Last Printout

Press the COPY button. The unit makes a copy of the last printout. The image of the last printout is retained in the unit's memory until you make a printout of another image or turn the power off. You can make only one copy regardless of the print quantity set using the menu.

### Notes

- If you press the COPY button immediately after turning the power on, the alarm buzzer will sound as nothing is stored in memory.
- Turning off the power of the printer will cause the image stored in memory to be lost.

### To make multiple copies of the same printout

Press the COPY button as many times as necessary (maximum 20 copies including the first printout) while copying the first printout. Each time you press the COPY button, a short buzzer sounds.

### Note

The number of printouts printed by pressing the PRINT button is also included in the maximum number. For example, if you press the COPY button after you pressed the PRINT button five times and made five printouts, the number of multiple copies of the same printout becomes 15.

### To interrupt copying

Press the OPEN or FEED button while copying.

### To make copies in different directions and sizes

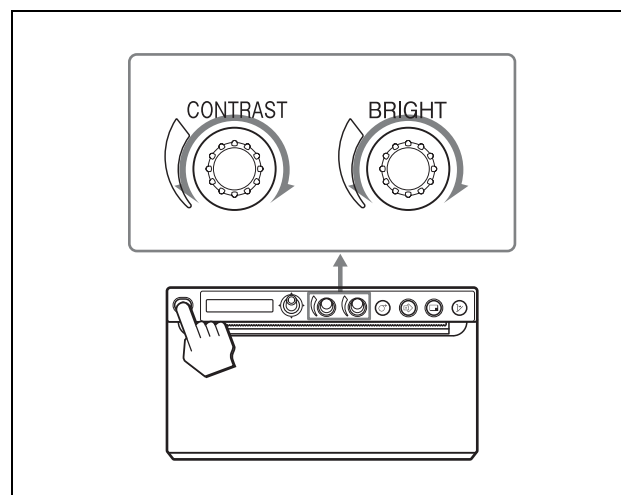
You can copy the video image stored last in a different direction and size. Before pressing the COPY button, select the printing direction and size. (page 25)

## Feeding Paper

To feed paper, press the FEED button. The unit will continue to feed paper as long as you hold down the FEED button. Do not attempt to pull paper out of the unit with your hand.

## Adjusting the Contrast and Brightness

You can adjust the contrast and brightness of the unit using the CONTRAST control and BRIGHT control.



### To adjust the contrast

You can adjust the contrast of printouts using the CONTRAST control.

**To make the contrast stronger:** Turn the CONTRAST control clockwise. Maximum is 64.

**To make the contrast weaker:** Turn the CONTRAST control counterclockwise. Minimum is -64.

### Note

The contrast adjusting function is equivalent to “Light” of the density control provided with the printer driver. The value adjusted by using the CONTRAST control is added to the value already set as “Light.”

### To adjust the brightness

You can adjust the brightness of printouts using the BRIGHT control.

**To make the image brighter:** Turn the BRIGHT control clockwise. Maximum is 64.

**To make the image darker:** Turn the BRIGHT control counterclockwise. Minimum is -64.

### To lock control

You can lock the CONTRAST control and BRIGHT control to prevent accidentally changing the setting by turning the controls.

**To lock:** Push and hold the menu lever for about three seconds. “LOCK” is displayed on the LCD, and the value does not change even when the control is turned.

**To unlock:** Push and hold the menu lever again. “UNLOCK” is displayed on the LCD, and the lock is canceled.

# Storing Images on a USB Flash Drive



## Warning

### Using this unit for medical purposes

This connector is not isolated.

Do not connect any device other than a USB Flash Drive powered exclusively by the electric supply from the unit. When a device that uses an alternating current is connected, current leakage may result in an electric shock to the patient or operator.

When a USB flash drive is inserted into the USB connector (type A), the image is captured as a Bitmap image file on the USB flash drive when you print it for the first time. In the case of reduced images, each image is stored as one file. You can see the image stored in the USB flash drive on a computer.

### Folder which the image is saved into

The image file will be saved into the \\SONY\\UP-X898\\SN.[Serial Number of this device] folder on the USB flash drive. If the folder does not exist, it will be created.

### File name of the image

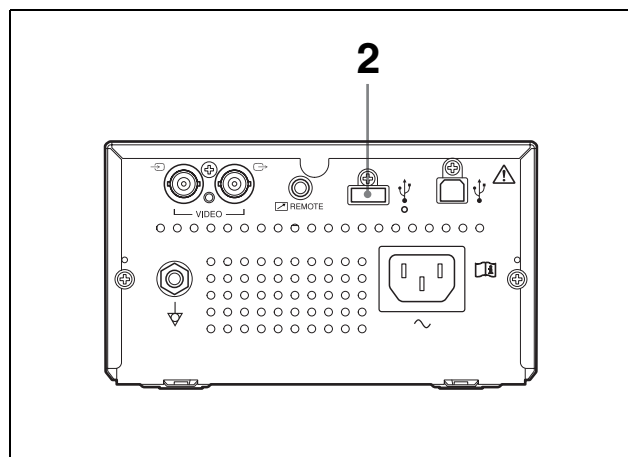
The first time you print an image by pressing the PRINT button, the resulting Bitmap file is stored with a time stamp and also a name that is automatically assigned from UP\_0000000.bmp incrementing to UP\_9999999.bmp.

### To make printouts with the correct date

The day and time setting is necessary. (page 19)

## Note

Be sure not to use a USB flash drive other than one manufactured by Sony Corporation.



- 1 Turn on the power of the monitor and this unit.
- 2 Connect the USB flash drive to the USB connector (type A) of this unit.
- 3 Press the PRINT button, when the VIDEO signal is printed.  
Print from a computer if printing images stored on the computer.  
The printer starts printing.  
When printing is finished, the image is also stored in the USB flash drive. While it is being written in the USB flash drive, "STORING" is displayed.  
When writing is completed, "STORING" is not displayed.

### To remove the USB flash drive

Whenever "STORING" is displayed, the printer is writing data on the USB flash drive. If you remove the USB flash drive, the data will not be written correctly, and the USB flash drive may be broken.

### When "NO.SPACE" is displayed

The USB flash drive is full or the maximum number of images has already been stored, and no further images can be stored.

In this case, delete unnecessary files from the USB flash drive using a computer or use a new USB flash drive.

## Notes

- The USB connector (type A) of this unit is for the USB flash drive only. Do not connect a USB device with its own power supply, such as a hard disk. Otherwise it may cause malfunction.
- Do not connect to the USB device requiring over 500 mA even temporarily, even if its power supply is from the USB connector (type A).
- The saving file format is compatible with only BMP.
- The image saved on the USB flash drive cannot be printed again.
- The image can be saved on the USB flash drive, but the saved image cannot be read nor deleted. Use on the connected computer to read or delete it.
- Backup files of the USB flash drive to your computer before using the USB flash drive with this device. If files of the USB flash drive are broken or deleted, it is not guaranteed.

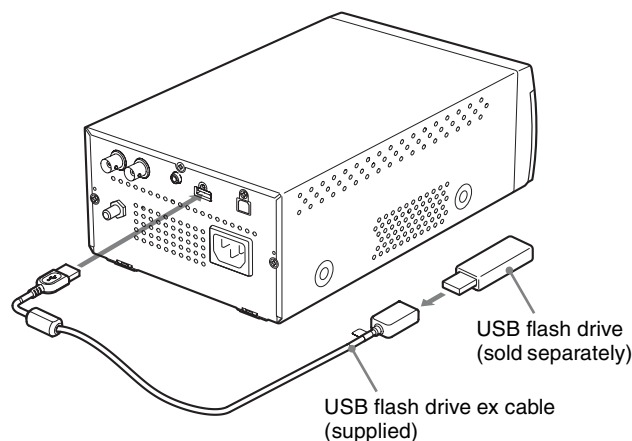
### Notes on the USB connector (type A)

- It is compatible with the USB mass storage.  
Operations for all types of USB flash drive are not guaranteed.
- Connection of the USB connector (type A) to the USB flash drive through a hub is not guaranteed.
- It is compatible with USB Hi-Speed.
- Corresponding file systems are FAT16 and FAT32.

- The USB flash drive with more than one driver cannot be used.
- It does not correspond to the USB flash drive with a special feature such as encryption.

**If it is hard to connect the USB flash drive to the USB connector (type A) on the rear of this unit**

Use the supplied USB flash drive ex cable.



**Note**

Do not use a USB flash drive ex cable other than the cable for this unit.

When a USB extension cable, etc. other than that designated for this unit used, the following failures may occur. Image file writing failures, destruction of files saved in the USB flash drive, or malfunctioning of the USB flash drive.

# Precautions

## On Safety

- Check the operating voltage before operation. Operate the unit only with a power source specified in “Specifications.”
- Stop operation immediately if any liquid or solid object falls into the cabinet. Unplug the unit and have it checked by qualified personnel.
- Unplug the unit from the wall outlet if you will not be using it for a long time. Disconnect the power cord by grasping the plug. Never pull the cord itself.
- Do not disassemble the cabinet. Refer servicing to qualified personnel only.

### Caution on the paper cutter

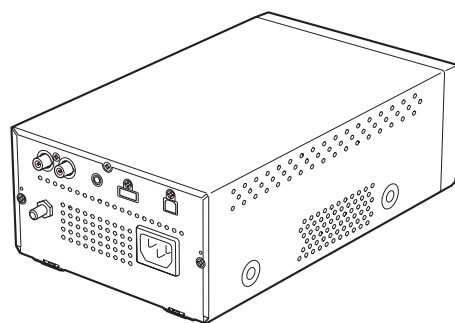
A paper cutter is mounted in the unit. When loading a paper or cleaning the unit, be careful not to touch the paper cutter. Touching the paper cutter may cause injury.

## On the Printer Carriage

Do not carry or move the unit when the paper roll is placed in the unit. Doing so may cause a malfunction.

## On Installation

- Place the unit on a level and stable surface. If you use the unit with placed on an uneven surface, malfunction of the unit is likely to occur.
- Do not install the unit near heat sources. Avoid locations near radiators or air ducts, or places subject to direct sunlight or excessive dust, humidity, mechanical shock or vibration.
- Provide adequate air circulation to prevent heat build-up. Do not place the unit on surfaces such as rugs, blankets, etc., or near materials such as curtains and draperies.
- To prevent internal heat built-up, leave enough room around the printer (at least more than 10 cm (4 in)). Do not cover the holes on the right and left sides of the printer and on the rear panel.



- If the unit is suddenly taken from a cold to a warm location, or if ambient temperature suddenly rises, moisture may form on the outer surface of the unit and/or inside of the unit. This is known as condensation. If condensation occurs, turn off the unit and wait until the condensation clears before operating the unit. Operating the unit while condensation is present may damage the unit.

## About the battery

This unit has a battery for the clock operation inside. The battery is a consumable part that will need periodic replacement.

When operating at room temperature, the normal replacement cycle will be about 5 years. However, this replacement cycle only represents a general guideline and does not imply that the life expectancy of this part is guaranteed. For details on part replacement, contact Sony service or your dealer.

# Maintenance

## Cleaning the Cabinet

When solvents such as benzene or thinner, or acid, alkaline or abrasive detergent, or chemical cleaning cloths are used on the printer surface, the surface finish may be damaged. Take care with respect to the following:

- Clean the printer surface with a 50 to 70 v/v% concentration of isopropyl alcohol or a 76.9 to 81.4 v/v% concentration of ethanol.
- Stubborn stains may be removed with a soft cloth such as a cleaning cloth lightly dampened with mild detergent solution and then cleaned using the above chemical.
- Do not use unnecessary force to rub the printer surface with a stained cloth. The printer surface may be scratched.
- Do not keep the printer surface in contact with a rubber or vinyl resin product for a long period of time. The surface finish may deteriorate or the coating may come off.

## Cleaning the Thermal Head

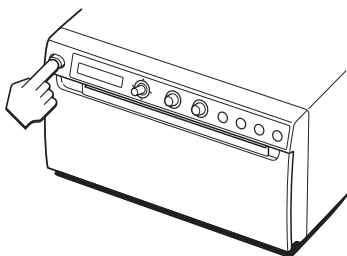
If the printout is dirty or white stripes appear on the printouts, clean the thermal head using the cleaning sheet supplied.

Carry out the head cleaning operation using the menu.

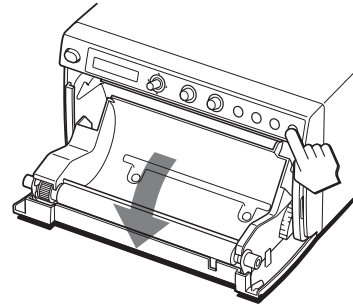
### Note

A paper cutter is mounted in the unit. When cleaning the thermal head, be careful not to touch the paper cutter. Touching the paper cutter may cause injury.

- 1 Press the power ON/OFF switch to on.



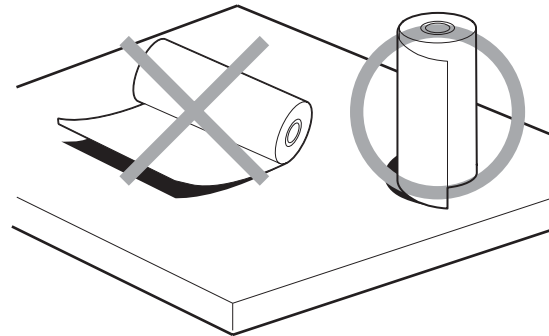
- 2 Press the OPEN button to open the door.



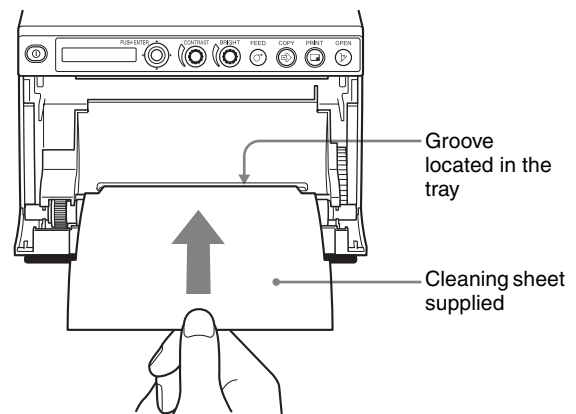
If the paper is loaded in the paper tray, remove it.

### Note

Be careful not to let the surface of the paper touch the other objects. Failure to do so may cause defective printings because of the dirt on the paper.



- 3 Insert the cleaning sheet, with the black surface facing down, into the groove of the paper tray.



- 4 Close the door by pushing it.
- 5 Push the menu lever. Menu item is displayed.
- 6 Display "CLEAN.TH" by shifting the menu lever up or down, and then push the menu lever.



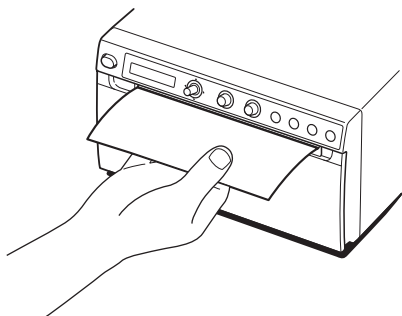
- 7 Confirm that "CLEAN:OK" is displayed, and then push the menu lever.  
The unit starts cleaning the thermal head.  
"CLEAN" is displayed on the LCD.  
When the cleaning sheet stops and the alarm sounds, the cleaning is completed.
- 8 Press the OPEN button to open the door and remove the cleaning sheet.
- 9 Close the door by pushing it.

#### Note

Clean the thermal head only when necessary. If you clean the thermal head too frequently, it may cause a malfunction.

## Cleaning the Platen Roller

When the surface of the platen roller gets dirty, the paper will not be fed smoothly, resulting in paper jams and inconsistent print quality. Press the power ON/OFF switch to on, and then press the FEED button for about one second to feed some more paper out of the unit. It is likely that the roller is getting dirty if the paper is easily pulled out by the hand.

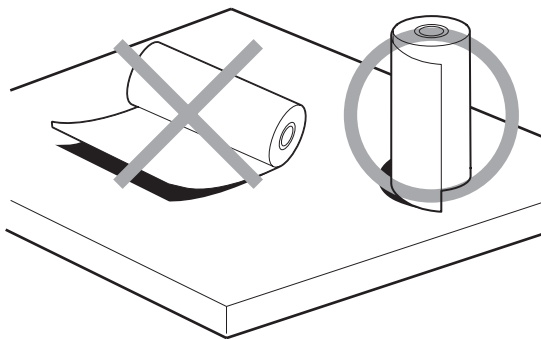


Clean the platen roller using a soft cloth moistened with a 76.9 to 81.4 v/v% concentration of ethanol when it becomes dirty.

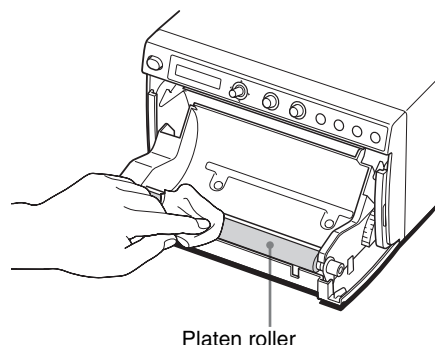
- 1 Press the power ON/OFF switch to on.
- 2 Press the OPEN button to open the door.  
If the paper is loaded in the paper tray, remove it.

#### Note

Be careful not to let the surface of the paper touch the other objects. Failure to do so may cause defective printings because of the dirt on the paper.



- 3 Clean the platen roller gently using a soft cloth moistened with ethanol.

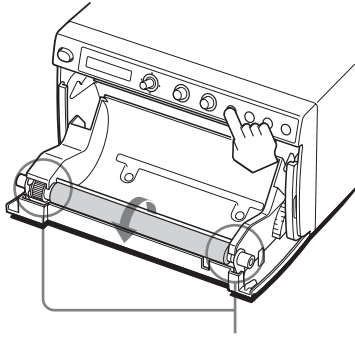


#### Notes

- After the surface of the platen roller wiped has been dried completely, turn the platen roller to clean another portion.
- Do not turn the platen roller with hands. Use the FEED button to turn it. To clean another part of the surface of the platen roller, go to the next step.
- Paper cutters are mounted in the unit.  
When loading paper, be careful not to touch the paper cutter. Touching the paper cutter may cause injury.



- 4** Press the FEED button.  
The platen roller turns about 120 degrees.



Be careful not to get your fingers caught in the turning platen roller.

#### Notes

- Be careful not to get your fingers caught in the turning platen roller.
- Be sure to start cleaning only after the platen roller has stopped completely.

- 5** Repeat steps 3 and 4 until the platen roller becomes clean.

- 6** After the platen roller has been dried completely, close the door by pushing it.

## Specifications

### Power requirement

100 to 240 V AC, 50/60 Hz

Input current 1.3 A to 0.6 A

### Operating temperature

5 °C to 40 °C (41 °F to 104 °F)

### Operating humidity

20% to 80%

### Operating pressure

700 hPa to 1,060 hPa

### Storage and transport temperature

-20 °C to +60 °C (-4 °F to +140 °F)

### Storage and transport humidity

20% to 80%

### Storage and transport pressure

700 hPa to 1,060 hPa

Dimensions 154 × 88 × 240 mm (w/h/d)  
(6 1/6 × 3 1/2 × 9 1/2 inches)

Mass 2.5 kg (5 lb 8.2 oz) (printer only)

Thermal head Thin-film thermal head, 1280 dots

Gradation 256-level gradation (8-bit)

Resolution (when "SC:WD1" is selected from "-SCAN" of "VIDEO")

NTSC: 720 × 504 dots

PAL: 720 × 604 dots

Picture size (when "SC:WD1" or "SC:NOR" is selected from "-SCAN" of "VIDEO")

When "SIDE:OFF" is selected from "-SIDE" of "VIDEO"

NTSC: 94 × 73 mm

PAL: 94 × 71 mm

When "SIDE:ON" is selected from "-SIDE" of "VIDEO"

NTSC: 124 × 96 mm

PAL: 127 × 96 mm

Printing speed About 1.9 sec./image (at standard setting) (when "HI" is selected from "-SPEED" of "CONFIG.")

About 3.3 sec./image (at standard setting) (when "NOR" is selected from "-SPEED" of "CONFIG.")

### Picture memory For Video

10 frames

(800k x 8 bits for one frame)

### For Digital

Max. 4096 x 1280 dots

Input connector VIDEO IN (BNC type)

NTSC or PAL composite video signals

1.0 Vp-p, 75 ohms (NTSC/PAL

automatically discriminated)

### Output connector

VIDEO OUT (BNC type)

Loop-through output from VIDEO IN  
(Automatic termination)

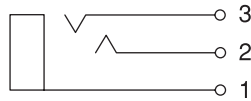
### Interface

Hi-Speed USB (USB 2.0)

USB connector (type A): USB flash drive only

USB connector (type B)

REMOTE connector (stereo mini jack)



- 1 GND
- 2 PRINT SIGNAL (TTL)  
Input of LOW pulse over 100 msec. initiates print.
- 3 PRINT BUSY (TTL)  
Goes HIGH during printing

#### Accessories provided

- Thermal head cleaning sheet (1)
- CD-ROM (including multi-lingual Instructions for Use, Readme and printer driver) (1)
- Before Using this Printer (1)
- Service Contact List (1)
- USB flash drive ex cable 1-848-418-11 (Sony) (1)
- Thermal Print Media UPP-110HG (1)

#### Optional accessories

- Thermal Print Media
  - UPP-110HG (High Glossy)
  - UPP-110HD (High Density)
  - UPP-110S (High Quality)
- Remote commander RM-91
- Foot switch FS-24

#### Caution

Do not use the FS-24 in a place (such as an operating room) exposed to liquids, etc., since the FS-24 conforms to IPX3 waterproof Ingress Protection Rating. In such a place, use a product which conforms to IPX6 or higher.

#### Medical Specifications

- Protection against electric shock:
  - Class I
- Protection against harmful ingress of water:
  - Ordinary
- Degree of safety in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide:
  - Not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide
- Mode of operation:
  - Continuous

The design and these specifications are subject to change without prior notification.

#### Notes

- Always verify that the unit is operating properly before use.  
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If the unit is suddenly taken from a cold to a warm location, or if ambient temperature suddenly rises, moisture may form on the outer surface of the unit and/or inside of the unit. This is known as condensation. If condensation occurs, turn off the unit and wait until the condensation clears before operating the unit. Operating the unit while condensation is present may damage the unit.

The life expectancy of the electrolytic capacitor is about 5 years under normal operating temperatures and normal usage (8 hours per day; 25 days per month). If usage exceeds the above normal usage frequency, the life expectancy may be reduced correspondingly.

If this unit is to be used together with devices that emit strong radio waves, such as a radio knife, always verify that the unit is operating properly before use and ensure that there is no failure of the unit.

The supplied Thermal Print Media (High Glossy) paper (UPP-110HG) is used for the test operation. If you will use this paper in the future, purchase the printer papers (sold separately) (page 12).

# Troubleshooting

Before you call for service, please check the problems and solutions described below. If you cannot solve the problem, contact the nearest authorized dealer.

Symptom	Causes/remedies
First few prints spotted with small dots.	New paper roll just installed? →If a new roll of paper has just been loaded, paper dust may cause white spots in printed images. Press the FEED button and hold it down to feed about 15 – 20 cm (6 – 8 in) and then release. (page 14)
Print job does not start. Or print job does not start even operated on the computer.	<ul style="list-style-type: none"> <li>Paper does not feed. →Power switched on? →Unit connected correctly? (page 11) →Paper roll loose? (page 13) →When printing the video image, “MLT” selected from the “-MULTI” menu item? (page 18) →When printing the video image, is the video signal of the image input? (page 11)</li> <li>Alarm sounds. →Has the thermal head overheated? The thermal head may overheat when the unit prints dark image continuously. Wait until the head cools down. →Paper loaded correctly? (page 14)</li> <li>Paper feeds but printing does not start. →Paper loaded with the wrong side up? (page 14)</li> </ul>
Black borders or missing portions around the printout	This problem may result from the video signal input to the unit. →Change the setting of the “SCAN” menu item. (page 18)
Paper Jams	<ul style="list-style-type: none"> <li>Jammed paper visible? →Press the OPEN button to open the paper door, remove the printout or the paper roll, and then gently pull the jammed paper out of the unit.</li> <li>Condensation collected in unit? →If the unit has just been brought into a warm room from a cold location, condensation may have formed inside the unit. Switch the unit off and let it set for 1 - 2 hours (until it warms to room temperature), then try printing again.</li> </ul>

Symptom	Causes/remedies
Printouts dirty.	<ul style="list-style-type: none"> <li>Thermal head dirty? →Use the head cleaning sheet provided with the unit to clean the thermal head. (page 31)</li> <li>Platen roller dirty? →Clean the platen roller using a soft cloth moistened with ethyl alcohol. (page 32)</li> </ul>
Paper is not fed smoothly.	Platen roller dirty? →Clean the platen roller. (page 32)
The unit stops printing while printing almost black images and the message “COOLING” is displayed on the LCD.	When printing almost black images continuously, the thermal head protection circuit may shut down the unit to prevent the thermal head from overheating. →Stop printing and allow the thermal head to cool.
White lines or small letters on the screen are not printed clearly.	When printing the video image, is “COLR:ON” selected in the “-COLOR” of “VIDEO” menu item for black and white input signals? →Select “COLR:OFF”
Small squares appear over the whole screen.	When printing the video image, is “COLR:OFF” selected in the “-COLOR” of “VIDEO” menu item for color input signals? Select “COLR:ON”
The printout is too dark or too light.	<ul style="list-style-type: none"> <li>Is the “-PP.TYPE” of “CONFIG.” menu item set correctly?</li> <li>Is the “-GAMMA” of “ADJUST” menu item set correctly?</li> </ul>
The printout seems stretched or enlarged.	Is “ASPT1:1” selected in the “-ASPECT” of “VIDEO” menu? →Select “ASPT:4:3.”
Printing is interrupted. When printing, the unit discharges several centimeters of the white paper and stops. The print operation cannot be performed. The FEED operation cannot be performed. When the paper is set correctly, “EMPTY” is displayed.	Does the sunlight or incandescent light that includes strong infrared light irradiate the paper exit? →The unit has an infrared light sensor that detects the printing paper. Therefore, when the light directly irradiates the paper exit, paper detection may not operate correctly. Do not expose the paper exit to light directly.

# Error Messages

Messages appear on the LCD under the following conditions. Take the remedial actions shown next to the messages to correct the problem.

Messages	Description and remedy
DOOR	The door panel is open. →Close the door panel until it is locked securely.
EMPTY	<ul style="list-style-type: none"> <li>There is no paper loaded.</li> <li>Paper has been used up. →Load some paper. (page 13)</li> </ul>
COOLING	The protection circuit that prevents the thermal head from overheating has been activated. →Wait for the message to disappear. Printing will then resume automatically.
LOCK	The menu operation function is locked. The menu lever, CONTRAST control and BRIGHT control are disabled. →If you want to perform menu operations or use those controls, contact the nearest authorized dealer.
ERROR	This unit has encountered a technical problem. →Restart the unit. If the display does not disappear, contact the nearest authorized dealer.
NO.INPUT	The PRINT button is pressed when the video signal is not input. →Connect the VIDEO input connector to the video equipment through the BNC cable, and then press the PRINT button after the video signal is input.

Messages	Description and remedy
STOR.ERR	<p>The USB flash drive connected to the USB connector failed to save the image.</p> <ul style="list-style-type: none"> <li>The USB flash drive is not Sony product with less than 64 GB. →Use a Sony USB flash drive with less than 64 GB.</li> <li>The USB flash drive is not formatted with FAT16 or FAT32. →Use a USB flash drive formatted with FAT16 or FAT32.</li> <li>The write-protect function of the USB flash drive is set. →Clear the setting.</li> <li>The USB flash drive has more than one partition, and so the unit recognizes it as multiple drives. →Use a USB flash drive having only one partition.</li> <li>The USB flash drive has security functions such as fingerprint authentication. →The unit does not recognize all features of every USB flash drive.</li> <li>The USB flash drive malfunctions. →Use a new USB flash drive.</li> </ul>
NO.SPACE	<p>The USB flash drive does not have enough space. →Change the USB flash drive with one that has free space.</p>

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Source code provided by the FreeType Project is used for TrueType font rasterizing.

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